



Legacy Amateur Radio Club

RCA AMATEUR RADIO CLUB



AFFILIATED CLUB

INDIANAPOLIS, INDIANA

JUNE 2018

MONTHLY NEWSLETTER

THE NEXT MEETING OF THE RCA AMATEUR RADIO CLUB WILL BE
TUESDAY, JUNE 12th, 6:30 PM AT
[SQUEALERS](#), 5899 E. 86th STREET, INDIANAPOLIS, IN

RCA ARC NEWS

SUMMARY OF THE MAY MEETING – Thanks to all who attended the May meeting. Repeater report: The '88 repeater seems to be operating normally. The antenna on the west side receive site needs to be repaired or replaced. The Indy Radio Club will not be chartering a bus to the Hamvention this year due to cost overruns. Refunds are available. The combined RCA/IRC radio clubs Field Day will not be at Camp Belzer, this year. The organizing committee is scrambling to find a new location. A few sites look like possibilities but a lot more are not suitable for various reasons. The search will continue (see below). Our Club will purchase ten tables at the Indy Hamfest July 13-14. Upcoming operating events include the IMS special events station and “Ships” weekend.

W9RCA REPEATER UPDATE – The 146.88 W9RCA repeater has been intermittently off the air during the past couple of weeks. As of June 2nd, replacing a cable seems to have fixed the problem.

AMATEUR RADIO LICENSE TEST SESSION –

Time: Saturday, June 9, 2018, 12:00 pm (Walk-ins allowed)

Location: Salvation Army EDS Training Facility, 4020 Georgetown Rd, Indianapolis, IN

Contact: Jim Rinehart, k9ru@arrl.net, 317 721-1458

JOINT IRC RCA ARC FIELD DAY OPERATION JUNE 23RD AND 24TH WILL BE AT THE VICTOR CONSERVATION CLUB. We had planned to operate from Camp Belzer again this year but found out the scouts had an activity on Saturday which limited our operations. The Field Day Committee, made up of members from the different clubs participating in the IRC joint field operation, looked for other sites without much luck. K9RU suggested we contact the Victor Conservation Club to see if we could rent that site and they came back with a positive answer. We have access to the Club house, grounds and the shelter. This is the site the RCA ARC had for Field Day in the early 70s.

We plan to operate in 3A with one station committed to HF Phone and one HF CW. A 3rd station will be a swing station for HF Phone, CW, or PSK31 (digital). The CW station will be setup in Dave Gingrich's RV and the HF phone, the swing station, and the VHF will be in the club house.

There will be a VHF station as well as a GOTA station. The GOTA station will be setup in the shelter. We are looking at setting up the antennas Friday evening to allow us to make changes if needed.

The Victor Conservation Club, [6675 Red Day Road, Martinsville](#) (it's actually near Centerton, west of State Rd. 67 and Rob Hill Rd.) is perched near the top of a southern Indiana hill that towers above State Road 67 below. How much above the highway? Well, elevation at the conservation club is about 875 feet, whereas elevation on State Road 67 below is only 650 feet! No wonder the back road to the top takes a steep upward turn as you access it from the bottom of the hill.

Here's a 3D view of the site on Google Maps: <https://www.google.com/maps/@39.5278138,-86.4170288,412a,35y,39.3t/data=!3m1!1e3>

Check out Dave Gingrich's excellent photos of the site (if you click on one of them, you can scroll through them all): [Victor Conservation Club photos](#)

RCA ARC will supply: IC756 Pro II and power supply, AF9A, IC756 Pro III and power supply K9RU. Honda generator and gas AF9A. Two each, 80M and 40M dipoles, triband trapped dipole and coax K9RU. 6M & 2M beams, mast and rotor. Extra power supplies and AC power strips. --K9RU

HAMFESTS, OPERATING EVENTS, VOLUNTEER OPPORTUNITIES

June 9-11	ARRL June VHF Contest
June 23-24	ARRL Field Day
July 13-14	Indianapolis Hamfest http://indyhamfest.com/
July 21-22	CQ Worldwide VHF Contest
Sept 22	Bloomington Hamfest http://www.bloomingtonradio.org/
Oct 6	Indianapolis Half Marathon, Lawrence, IN mailto:NN7C@comcast.net
Oct 6	Hoosier Hills Hamfest http://www.w9gyq.org/
Oct 6-7	Hilly Hundred, Ellettsville, IN mailto:N9FEB@comcast.net
Oct 20	American Diabetes Assoc. Tour-de-Cure, mailto:KU9V@arrl.net
Oct 20	Shelbyville Tailgate Hamfest http://www.brvars.com/
Nov 3	Indianapolis Monumental Marathon, mailto:N9FEB@comcast.net
Nov 17	Fort Wayne Hamfest http://www.fortwaynehamfest.com/
For More Contests Information: http://www.contestcalendar.com/	
Opportunities for public service: http://indyhams.org/event	

XENIA ENJOYS A SECOND, MORE SUCCESSFUL YEAR PLAYING HOST TO "DAYTON"

Hamvention® 2018 returned to the Greene County Fairgrounds and Expo Center in Xenia, Ohio, for a second year, earning high marks for attendance, the debut of many new Amateur Radio transceivers, and tasty food.

"Other than the rain showers Friday and Saturday, the event seemed to go very smoothly," said QST Editor Steve Ford, WB8IMY, who has been on hand for many past Hamventions. "Many attendees, great food, and a spacious layout that made it easy to get around. It is a *much* better venue than Hara," he added. Others who commented on the Hamvention Facebook page agreed, although some complained that the flea market area was too small, still muddy, and not as well attended as in past years, when the flea market was Dayton Hamvention. Many credited the Dayton Amateur Radio Association ([DARA](#)) for putting on a great show while still addressing needed improvements.

Ford said the rain, which included a Saturday thundershower, did not deter the crowds,

although indoor exhibit areas were packed at times, reminiscent of the steamy traffic jams of the past at Hara Arena during wet weather.

ARRL EXPO, the focus of ARRL's Hamvention presence, saw considerable traffic, and visitors kept those tending the ARRL Store quite busy. Ford said attendees seemed to appreciate the ARRL Stage, where talks on various topics were presented throughout the show. ARRL Marketing Manager Bob Inderbitzen, NQ1R, said the ARRL team included nearly 100 people -- from Field Organization volunteers, Section Managers, Officers, Directors, Vice Directors, partners, served agency representatives, ARRL staff, and members who helped out.

Ford postulated that Hamvention 2018 may have witnessed a record number of new Amateur Radio products. New transceivers included Icom's IC-7610, Kenwood's TS-890S, Yaesu's FTDX-101D, and FlexRadio's FLEX-6400M and FLEX-6600M. CommRadio introduced its CTX-10, a compact SDR-based QRP transceiver. Other new products ranged from CW keys, to digital mode interfaces, to audio processors and amplifiers. The August issue of *QST* will provide a roundup.

Showers persisted into Saturday. "Hamvention's attempts to mitigate last year's mud issues in the flea market area seemed to help, although the relentless rain proved to be a challenge," Ford observed. "As a result, the indoor exhibits appeared to receive the lion's share of the traffic."

Perhaps as a result of the wet weather, Hamvention forums proved popular. For example, a nearly standing-room-only crowd to the RTTY Contesting forum heard ARRL Southwestern Division Vice Director Ned Stearns, AA7A, discuss FT8 as a possible replacement for RTTY in contest applications. Stearns has been involved in proving out FT8 DXpedition Mode. The ARRL membership forum also drew a substantial crowd. After comments by President Rick Roderick, K5UR, Great Lakes Division Director Dale Williams, WA8EFK, addressed potential changes to the Amateur Radio Emergency Service® (ARES) program.

The skies cleared on Sunday, and bargain hunters flocked to the Fairgrounds. A number of exhibitors commented that it was the largest Hamvention Sunday attendance they'd seen in a long time.

Young attendees seemed to be in greater evidence this year, including teams of students interested in combining Amateur Radio with robotics. For example, the [First Robotics](#) competition teams were on hand to demonstrate their creations.

The Yasme Foundation-sponsored "Ham Radio 2.0 -- Innovation and Discovery" area was a big hit, Yasme Foundation President Ward Silver, N0AX, said. "Subjects ranged from high-bandwidth satellite designs to Summits on the Air (SOTA), [HamSCI's](#) 2017 Solar Eclipse QSO Party (SEQP) research, and QSLs." Silver said the goal was to help diverse groups meet and interact. Researcher Nathaniel Frissell, W2NAF, who staffed the HamSCI booth, reported "a tremendous response."

Florian Zwingl, OE3FTA, of Austria, and Koos Fick, ZR6KF, of South Africa represented the IARU Region 1 group Youngsters on the Air ([YOTA](#)), promoting YOTA in IARU Region 2 (the Americas). The YOTA "[Summer Camp](#)" will be held in August in South Africa -- when it's winter in the Southern Hemisphere.

"The weather notwithstanding, the mood was clearly upbeat. The open layout of the Xenia Fairgrounds drew compliments as attendees found it much easier to navigate than Hara Arena," Ford said. "The Dayton Amateur Radio Association also received kudos for their smooth management of the event. The food vendors drew rave reviews with delights ranging from standard carnival fare to ethnic cuisine." --ARRL Letter

AMATEUR RADIO TRANSPONDERS ON PLANNED CHINESE SATELLITES TO INCLUDE HF

China's Amateur Radio Satellite organization, CAMSAT, has released some details of three new Amateur Radio satellites that could be launched as early as September. Two of the satellites, CAS-5A and CAS-6, will carry transponders; one will have HF capability.

CAS-5A, a 6U CubeSat, will have an HF/HF (21/29 MHz) mode linear transponder; an HF/UHF (21/435 MHz) mode linear transponder; an HF CW telemetry beacon; VHF/UHF mode linear transponder; a VHF/UHF mode FM transponder; a UHF CW telemetry beacon, and UHF AX.25 4,800/9,600-baud GMSK Telemetry. Transponders will have 30 kHz passbands, except for the H/U unit, which will be 15 kHz.

The tiny CAS-5B, weighing 1/2 kilogram, will be deployed from CAS-5A in orbit. It will carry a UHF CW beacon on an Amateur Radio frequency. It will be placed into a 539 × 533 kilometer, 97.5° orbit.

CAS-6, a 50-kilogram microsat, will include a VHF CW telemetry beacon; a U/V mode 20 kHz linear transponder, and AX.25 4,800-baud GMSK telemetry downlink. It will also carry an atmospheric wind detector and other systems that will operate on non-amateur frequencies.

A launch at sea is planned for CAS-6, which will be placed into a 579 × 579 kilometer, 45° orbit.

CAMSAT has applied to the [IARU](#) to coordinate frequencies for all three spacecraft. -- *Thanks to AMSAT News Service via AMSAT-UK*

SOLAR ECLIPSE QSO PARTY RESEARCH RESULTS PUBLISHED IN GEOPHYSICAL RESEARCH LETTERS

The first science results from the Solar Eclipse QSO Party ([SEQP](#)) last August 21 have been [published](#) in the American Geophysical Union journal *Geophysical Research Letters*. In the paper, "Modeling Amateur Radio Soundings of the Ionospheric Response to the 2017 Great American Eclipse," New Jersey Institute of Technology (NJIT) researcher Nathaniel Frissell, W2NAF, and team present Reverse Beacon Network ([RBN](#)) observations of the SEQP and compare them with [ray tracings](#) through an [eclipsed version of the physics-based ionospheric model SAMI3](#). [HamSCI](#), the Ham Radio Science Citizen Investigation organization, sponsored the event.

"From a ham radio perspective, this paper very clearly shows the effect of the eclipse on not just a few, but a very large number of contacts," Frissell told ARRL. "You can see from the charts that activity drops off steeply on 20 meters during eclipse totality, while 80 and 160 meters open up. On 40 meters, you can see how the contact distance increases in step with the eclipse."

Frissell said another key aspect of the paper is that the researchers were able to use ray tracing to compare the observations to a physics-based numerical model of the eclipsed ionosphere.

On 20 meters, eclipse effects were observed as a drop off in communications for an hour before and after eclipse maximum. On 40 meters, typical path lengths extended from about 500 kilometers (310 miles) to 1,000 kilometers (620 miles) for 45 minutes before and after eclipse maximum. On 160 meters and 80 meters, eclipse effects were observed as band openings 20 to 45 minutes around eclipse maximum. Read [more](#). -- *Thanks to Nathaniel Frissell, W2NAF*

ARRL TO SHOW OFF HAM RADIO AT EAA AIRVENTURE OSHKOSH 2018

With support from member volunteers, ARRL will put Amateur Radio on display for visitors to [EAA AirVenture Oshkosh 2018](#) -- the giant, annual airshow July 23 - 29 in Wisconsin, organized by the Experimental Aircraft Association ([EAA](#)). The event attracted more than 10,000 aircraft and nearly 600,000 visitors in 2017 to enjoy aerobatics displays, informative programs, hands-on workshops, and diverse aircraft spanning all eras of flight.

"The cross-over between Amateur Radio operators and pilots, aviation enthusiasts, and air show attendees has a strong correlation," said ARRL Central Division Director Kermit Carlson, W9XA, who is part of the volunteer team organizing the ham radio exhibit at AirVenture. "Attendees include many licensed and prospective Amateur Radio operators."

ARRL's exhibit will promote Amateur Radio to newcomers and inform all attendees of the similarly diverse technology and innovation enjoyed by both hams and pilot.

"Ham pilots are doing all sorts of things from the sky, including long-distance HF communications, aircraft tracking using APRS beacons, and search and rescue," Carlson said. "Developing the capability to communicate from your aircraft to a ham on the ground is also fun!"

ARRL has posted a [short survey](#) that invites pilots who are radio amateurs to share their ideas for exhibiting at EAA AirVenture 2018. The ARRL display will build upon existing ham radio demonstrations at the show, including EAA Amateur Radio Special Event station W9ZL, organized annually by the Fox Cities Amateur Radio Club in Appleton, Wisconsin, and set up at the Pioneer Airport airstrip in Oshkosh. W9ZL will be on the air throughout the week of the Oshkosh air show. --ARRL Letter

MARITIME RADIO HISTORICAL SOCIETY'S MUSEUM STATION K6KPH IS BACK

Maritime Radio Historical Society (MRHS) Amateur Radio station K6KPH is back on the air after a brief hiatus, although still at a minimal level at this point. K6KPH, intended as a tribute to KPH, the "wireless giant of the Pacific," relays the W1AW Field Day Bulletin, and W1AW Morse code practice qualifying runs for west coast amateurs.

"Not all the K6KPH frequencies were back on at first, as we had to change antenna assignments to get the minimum service we have now," said Steve Hawes, WB6UZX, who explains that K6KPH is "sort of" back, as some repair work is pending.

Hawes said the crew of K6KPH volunteers made some temporary repairs to get some antennas back in service, and the station now is usable on 80, 40, 20, 17, and 15 meters. He said K6KPH expects to be ready to handle the qualifying run transmissions starting with June's, and also will be transmitting the ARRL Field Day bulletins.

"For the [Field Day] digital transmissions, I'll have to wrestle 7/8-inch Heliac between two different transmitters on 7 and 14 MHz," Hawes noted.

K6KPH uses the original KPH transmitters, receivers, and antennas; no amateur equipment is employed. The transmitters for most bands are Henry HF-5000 commercial units, but the 1950s-vintage RCA commercial units, known as "K" and "L" sets, are used on special occasions. Transmitting antennas are double extended Zepps for frequencies below 12 MHz (K6KPH and KPH prefer megacycles to megahertz), and H over 2 for 12 MHz and above, all fed with open-wire line.

The Bolinas, California, site that's now home to K6KPH and KPH originally was a 1914 Marconi Company facility with a 350-kW low-frequency rotary-gap transmitter for overseas radiotelegraph traffic.

Hawes said the Bolinas/Point Reyes sites were dark until the Maritime Radio Historical Society made a proposal in 2000 to the National Park Service -- Point Reyes National Seashore -- to restore and "interpret" the site, which would include putting it on the air.

"The NPS does maintain the building and pay for the power, but there isn't a regular budget for radio and antenna maintenance," Hawes explained. "MRHS has been buying tubes and parts and paying for some antenna repairs and tree trimming. The park has obtained grants over the years for major antenna work, and there is another one pending for later this year to rebuild some of the 'H-Frames' -- transmission line supports. The work we did -- and paid for -- was to get back on the air until the full rebuild work is done." Read [more](#). --ARRL Letter

AMATEUR RADIO PARITY ACT LANGUAGE INSERTED IN NATIONAL DEFENSE AUTHORIZATION ACT

ARRL has praised the work of US Representatives Joe Courtney (D-CT/2), Vicky Hartzler (R-MO/4), and Mike Rogers (R-AL/3) for their successful efforts in securing language in the FY 2019 National Defense Authorization Act (NDAA) that asks the FCC to grant radio amateurs living in restricted communities the right to install effective outdoor antennas. Text from the proposed Amateur Radio Parity Act (HR 555) formed the basis for the Courtney-Hartzler-Rogers Amendment to the NDAA.

"The bill does entitle each and every Amateur Radio operator living in a deed-restricted community to erect an effective outdoor antenna. Full stop. That is the principal benefit of this legislation," ARRL General Counsel Chris Imlay, W3KD, stressed. "There are tens of thousands of ham radio licensees who now, absent the legislation, cannot erect any outdoor antenna at all. This enables them in the same way PRB-1 has enabled hams to address unreasonably restrictive zoning ordinances during the past 33 years."

Imlay pointed out, though, that certain conditions apply. Prior to erecting an antenna in a deed-restricted community, an applicant for an outdoor antenna may have to apply to the homeowners association (HOA) for prior approval of the particular antenna system proposed by the ham. The Act would not empower an HOA to deny approval of all outdoor antennas. But neither does it entitle radio amateurs residing in deed-restricted subdivisions to erect whatever antennas they want.

"This legislation is a good, solid balance that favors hams and, as I say, allows tens of thousands of hams to erect effective antennas that they have no right to erect now," Imlay said.

The amendment, offered by the bipartisan trio and accepted by the House Armed Services Committee by voice vote, will ensure that Amateur Radio operators will continue to play a vital role in supporting communications in a disaster or emergency. Amateur Radio has long-standing relationships with the Department of Defense through the Military Auxiliary Radio Service (MARS) and spectrum sharing.

The Armed Services Committee passed the NDAA by a 60-to-1 voice vote after a 14-hour markup that ran well into the night. The bill now awaits House floor action. The Senate will begin its markup of the NDAA during the week of May 21.

Representatives Courtney and Adam Kinzinger (R-IL/16) spearheaded the effort to include the Parity Act language in the NDAA. Both are cosponsors of the Parity Act, which has passed the House by voice vote twice in the past 2 years.

Recognizing the long-standing relationship between Amateur Radio and the Department of Defense, Congressman Kinzinger -- who served multiple tours for the USAF as a fighter pilot and is still a Major in the Air National Guard -- and Courtney have been champions of the legislation in Congress.

"The steadfast support of the Amateur Radio community continually demonstrated by Congressmen Kinzinger and Courtney has been a godsend," said Hudson Director Mike Lisenco, N2YBB. "The Parity Act wouldn't be anywhere close to this stage without their strong support, and our organization is extremely grateful."

ARRL has pledged to continue pressing for support to enact the Amateur Radio Parity Act throughout the legislative process. Read more. --ARRL

ARRL EXECUTIVE COMMITTEE HEARS UPDATES ON PARITY ACT, FCC PETITIONS, SMALL SATELLITES

Meeting on April 21 in Windsor, Connecticut, the ARRL Executive Committee (EC) heard a status update on the Amateur Radio Parity Act and on regulatory matters from ARRL General Counsel Chris Imlay, W3KD. Imlay reported that ARRL continues to work multiple avenues in its efforts to secure passage of the bill. He said ARRL continues to have solid support from House leadership, and most notably from Representative Adam Kinzinger (R-IL), who, Imlay noted, has worked tirelessly to see the Parity Act become law.

Regulatory: The EC also discussed the FCC's recent Notice of Proposed Rulemaking (NPRM) regarding the deployment of "small satellites" by colleges, universities, and commercial entities using experimental licenses on Amateur Radio spectrum. The EC was told that the International Amateur Radio Union (IARU) has changed its previous policy regarding the coordination of small satellites (CubeSats), and that FCC policy is overly restrictive in some respects and insufficiently protective against commercial exploitation of amateur spectrum in other respects. AMSAT has requested ARRL's input.

The EC agreed that ARRL's comments should reflect our support for World Radiocommunication Conference 2015 Resolution 659 and IARU policies. In addition, ARRL (a) will support and encourage college and university Amateur Radio experiments where the sponsor of the experiment is an amateur licensee and all operation is in amateur spectrum, and (b) will discourage commercial or Part 5 experimental operations using Amateur Radio spectrum.

The EC asked Imlay to file ex parte comments in support of Petition for Rule Making RM-11775 relating to frequent changing of vanity call signs, and to file ex parte comments on ARRL's Petition for Rule Making, RM-11785, noting that the Canadian government has implemented a new, contiguous 5 MHz band and permitted a power level of 100 W. The EC also requested that Imlay support a request by certain ARRL members for an STA or experimental license for higher terrestrial and EME power levels in the 76 - 81 GHz band, to permit Amateur Radio experimentation.

The EC asked Imlay to share with the National Telecommunications and Information Agency (NTIA) ARRL's concerns regarding an NTIA study to use 3450 - 3550 MHz for mobile wireless applications. That includes a portion of the 9-millimeter Amateur Radio band.

Updated OO Program Progress: ARRL Atlantic Division Vice Director Riley Hollingsworth, K4ZDH, the new chair of the Amateur Auxiliary Study Working Group, reported via teleconference that he'd met with the FCC's Laura Smith concerning implementation of an updated and improved Official Observers (OO) program. Several attorneys have reviewed the ARRL's draft memorandum of understanding, and several Commission attorneys who have reviewed the new manual for Volunteer Monitors will be providing feedback on the proposal. Once the FCC's comments are received and addressed, the Working Group will present its final report and recommendations to the EC.

The EC directed CEO Barry Shelley, N1VXY, to work with the Amateur Auxiliary Study Working Group and Headquarters staff to update the full Board and membership on the status of the OO

program and potential changes. In the interim, the ARRL Field Organization [may resume making](#) a limited number of OO appointments.

ARRL Governance: The EC discussed a wide range of options to most effectively update ARRL's Articles of Association and Bylaws and to bring proposed additions or revisions to the full Board for its consideration in July. The Board in January adopted new articles 15 and 16 to make the language of the Articles of Association consistent with Connecticut nonprofit corporation statutory language, but filing these with the state was postponed for additional fine tuning.

Article 15 addresses the issue of personal liability on the part of Directors, Vice Directors, staff officers, or volunteers regarding breach of duty in their respective roles, provided the breach did not involve a "knowing and culpable" violation of law, improper personal economic gain, a lack of good faith, and conscious disregard or sustained and unexcused pattern of inattention amounting to abdication of duty.

Article 16 would indemnify volunteer and staff officers, Directors, and Vice Directors for any action taken or any failure to take action, with conditions similar to those spelled out in Article 15.

Pursuant to action at the January Board meeting, the EC reached consensus to develop a revised Policy on Board Governance and Conduct of Members of the Board of Directors and Vice Directors ("Code of Conduct"), using a template from the National Council of Nonprofits and an edited version of the current conduct code. An ad hoc committee was formed to draft a proposal to be presented at the fall Executive Committee meeting and, subsequently, to the full Board.

ARRL will publish white papers to explain changes to the Articles of Association, Bylaws, and Code of Conduct, in advance of the July Board meeting. Read [more](#).

RECEPTION REPORTS REQUESTED AS AMATEUR RADIO HEADS TO THE MOON

China launched two microsatellites into a lunar transfer orbit on May 20 in conjunction with the Chang'e 4 mission to the far side of the moon. The Longjiang-1 (LJ-1) and Longjiang-2 (LJ-2) microsats were secondary payloads on the launch, piggybacking on the Queqiao relay satellite. Also known as DSLWP-A1 and DSLWP-A2, the satellites were maneuvered onto a track to the moon, but LJ-1 then appeared to have encountered problems, and Harbin Institute of Technology, which developed the satellites, was asking for help from the world Amateur Satellite community.

"We lost contact with Satellite A on S band after an orbit adjustment," Wei Mingchuan, BG2BHC, of Harbin Institute of Technology said. "We just tried to switch on UHF, but we don't know if it works or not." He said on 435.425 MHz, the satellite should alternate between 500 bps GMSK and JT4, while the 436.425 MHz signal should be 250 bps GMSK. Both transmit once every 5 minutes.

LJ-1 and LJ-2 also will test low-frequency radio astronomy and space-based interferometry. The astronomy objectives of the two spacecraft are to observe the sky at the lower end of the electromagnetic spectrum -- 1 MHz to 30 MHz -- with the aim of learning about energetic phenomena from galactic sources, using the moon to shield them from earthbound radio signals. The Chang'e 4 mission will mark the first-ever attempt at a soft landing on the far side of the moon.

Signals from the DSLWP satellites were received after launch by radio amateurs in Brazil, Chile, and the US, as well as by many others around the world. Each satellite carries VHF/UHF SDR transceivers for beacon, telemetry, telecommand, and digital image downlink. Onboard transmitting power is about 2 W.

The Queqiao communications relay satellite is required for the lunar far-side landing to facilitate communication with a not-yet-launched lander and rover, because the moon's far side never faces Earth, and some significant scientific measurements from the dark side of the moon require real-time contact with Earth. Queqiao was developed by the China Academy of Space Technology (CAST).

AMBITIOUS ARIZONA STEM PLANETARY ROVER PROJECT IS A WINNER

An Amateur Radio-based science, technology, engineering, and mathematics (STEM) initiative at an Arizona elementary school culminated on May 22, as youngsters competitively deployed their own radio-controlled rovers to explore a simulated planet set up in the Sonoran Desert. Following in the footsteps of NASA scientists, 25 pupils at Bouse Elementary School -- several already holding ham radio licenses -- took part in the APS Arizona Rover Project, which is aimed at promoting STEM subjects through Amateur Radio and preparing young participants to earn an Amateur Radio license.

"It was awesome!" said Dave Anderson, K1AN, the president of My La Paz, which sponsored the project in cooperation with Arizona Public Service (APS) and community volunteers. The nonprofit My La Paz promotes health, education, and community in La Paz County. "The youth all had the chance to explore the artificial planet, the event was well attended, and the radio links for remote control and video were rock solid."

The APS Arizona Rover project was part of a 5-month-long in-curriculum education program at Bouse Elementary that Anderson hopes to expand to other schools in La Paz County.

"Its primary goal was to lift up and inspire the youth into science and learning via instruction and exploration of radio science, Amateur Radio, and space research," Anderson told ARRL. "The goals of the program were to deliver science instruction that met and exceeded Arizona Common Core educational guidelines and to help the youngsters prepare to attain their Amateur Radio licenses."

Anderson said 23 students got their Technician licenses while also learning and developing electronic circuits, breadboarding, and more within the school day.

Leading up to launch day, participants were challenged to complete different missions using only Amateur Radio technology for remote control, data, and video feeds. In a matter similar to what the Mars Rover scientists do, the students had to complete these missions from a remote location without actually being able to see their robots. Rovers competed in several categories. These included completing specific objectives remotely from mission control and safely returning to their landing vehicle in an allotted time using only a computer interface with their Amateur Radio.

Seven radio amateurs mentor in the youth-led Arizona Amateur Radio Association (AZARA). In addition to Anderson, they include Joe Lewellen, K7JEL; Daryl Duffin, NU7X; Neil Hays, W6FOG; Alexander Fulcher, N4SVD; Pat Delong, KD7KEL, and Heather Caton, W8GEM, an educator who teaches Amateur Radio in the schools as part of the curriculum.

A unique facet of My La Paz is its focus on Amateur Radio, Anderson said, because of what it can offer the county's young people in sparsely populated La Paz County, where many families live at the poverty level.

"In many ways, Amateur Radio has become the students' first social media, since many of their homes have no computers or internet access," he told ARRL. "It no longer matters where a youth lives or their family income; they can now participate in learning opportunities or making new social connections and friends via the Desert Amateur Radio network." The number of youngsters now licensed across La Paz County is approaching 100.

FCC DENIES PETITION AIMED AT PREVENTING INTERFERENCE FROM DIGITAL REPEATERS TO ANALOG REPEATERS

The FCC has turned away a Petition for Rulemaking from a Michigan radio amateur that asked the Commission to amend Section 97.205 of the Amateur Service rules to ensure that repeaters using digital communication protocols do not interfere with analog repeaters. Charles P. Adkins, K8CPA, of Lincoln Park, had specifically requested that discrete analog and digital repeaters be separated either by distance or frequency and that digital repeaters be limited to 10 W output, the FCC recounted in its June 1 denial letter, released over the signature of Scot Stone, the deputy chief of the Wireless Telecommunications Bureau's Mobility Division. According to the letter, Adkins had characterized digital repeaters as "a major annoyance" to analog repeater operators.

"In 2008, we rejected a suggestion to amend Section 97.205(b) to designate separate spectrum for digital repeaters in order to segregate digital and analog communications," the FCC said in its letter to Adkins. "We noted that when the Commission has previously addressed the issue of interference between amateur stations engaging in different operating activities, it has declined to revise the rules to limit a frequency segment to one emission type in order to prevent interference to the operating activities of other Amateur Radio Service licensees."

The FCC told Adkins that current Part 97 rules already address the subject of interference between amateur stations, prohibiting, among other things, willful or malicious interference to any radio communication or signal, and spelling out how interference disputes between repeaters should be handled.

"You have not demonstrated any changed circumstances or other reason that would warrant revisiting this decision," the FCC concluded. "Consequently, we dismiss your petition."

The FCC did not assign a rulemaking petition (RM) number to Adkins' petition nor invite public comments.

SHORTS

NEW SECTION MANAGERS ELECTED IN FIVE ARRL SECTIONS – Five new ARRL Section Managers have been declared elected to begin their first terms of office on July 1. Section Manager (SM) election ballots were counted in the Indiana and Northern Florida Sections on May 22 at ARRL Headquarters. Other candidates faced no opposition during the spring election cycle.

In Indiana, James "Jimmy" Merry, KC9RPX, was declared elected in a very close race with Brian G. Jenks, W9BGJ, the Indiana Section Traffic Manager. Merry received 451 votes, and Jenks received 438 votes.

Merry has been the Affiliated Club Coordinator in Indiana since 2005, and is presently serving a fifth term as president of the Bloomington Amateur Radio Club. Incumbent Indiana SM Brent Walls, N9BA, decided not to run for another term after helming the Indiana Field Organization since July 2016. --[ARRL Letter](#)

THREE CUBESATS WITH AMATEUR RADIO PAYLOADS DEPLOYED FROM ISS: The Japan Aerospace Exploration Agency (JAXA) has announced that three CubeSats carrying Amateur Radio payloads, including one with a V/U linear transponder, were deployed from the International Space Station (ISS) on May 11 at around 1030 UTC. *Irazú* (Costa Rica) and *1KUNS-PF* (Kenya) carry beacon/telemetry in the 70-centimeter Amateur Radio band, while *UBAKUSAT* (Turkey) carries an Amateur Radio linear transponder for SSB and CW, in addition to CW and telemetry beacons. *Irazú* is a 1U CubeSat developed by students at the Costa Rica

Institute of Technology, with a telemetry beacon at 436.500 MHz. *1KUNS-PF* is a 3U CubeSat developed by students at the University of Nairobi, with a telemetry beacon (9.6 kbps) at 437.300 MHz. *UBAKUSAT*, a 3U CubeSat developed by students at the Istanbul Technical University, has a CW beacon at 437.225 MHz, and a telemetry beacon at 437.325 MHz. The linear transponder downlink is 435.200 - 435.250 MHz; the uplink is 145.940 - 145.990 MHz. --
Thanks to Masa Arai, JN1GKZ, via AMSAT-UK

THE "SCOUTS BSA" PROGRAM CHANGE IS EXPECTED TO ENHANCE HAM RADIO OPPORTUNITIES FOR YOUNG WOMEN. Boy Scouts of America's Radio Scouting Coordinator Jim Wilson, K5ND, says that, although the program name for ages 11 to 17 will change to "Scouts BSA" and begin admitting girls starting on February 1, 2019, the organization's name remains the same. "Perhaps the big difference is that girls will now be eligible to earn the Radio Merit Badge as part of their Scouting program," Wilson told ARRL. "Girls are already a part of Venturing, a coed program for ages 14 to 20." He pointed out that Venture Scouts of both sexes have always been able to earn the [Amateur Radio Operator Rating Strip](#) and the [Morse Code Interpreter Strip](#). "Girl Scouts have always been welcome to participate [in JOTA]," Wilson added. "Now, they'll be participating in not only Girl Scouts, but also in Cub Scouts and Scouts BSA." Wilson noted that Scouting organizations in most other countries have had female members for quite a while now. --ARRL Letter

UNICORN-2A POCKETQUBE TO LAUNCH LATER THIS YEAR FROM ALASKA - According to a BBC News report, a new UK-built PocketQube satellite, Unicorn-2A, developed by radio amateurs at Glasgow's Alba Orbital, will launch later this year from Alaska.

Three radio amateurs at Alba Orbital worked on Unicorn-2A, which will have downlinks in the 437 MHz and 2400 MHz bands. One of the transmission modes will be LoRa, a patented wireless communication technology. A 3rd quarter 2018 launch is planned on a Vector Launch Inc. rocket from Kodiak, Alaska, into a 350 × 350 kilometer 98° orbit. The mission will last about 45 days.

A Dutch PocketQube, Delfi-PQ, downlink 436.650 MHz, is expected to be a fellow passenger on the launch. Alba Orbital is collaborating with the University of Aachen in Germany and its Amateur Radio group DL0FHA to trial Unicorn-2A operations and act as a backup, to help students to learn about communication with a real mission. — Thanks to AMSAT-UK

THE DAYTON DAILY NEWS REPORTED THIS WEEK THAT A LOUISVILLE, KENTUCKY-BASED DEVELOPER, MICHAEL HEITZ, OF GARRETT-DAY LLC PROPERTIES, IS IN THE PROCESS OF BUYING HARA ARENA, which served as home to Dayton Hamvention® from 1964 until 2016. Heitz told the Dayton Daily News that he bought out income tax liens on the property from Montgomery County and is hoping to close on some bank liens later this week. The purchase includes the six-building Hara Arena complex and some 120 acres of real estate, 25 of them devoted to parking. Heitz said his priority is to "clean it up and secure the property."

The Wampler family had owned and operated Hara Arena since its humble origins in the 1950s, when Wampler Ballarena -- then a dance hall and now an exhibit hall familiar to Hamvention visitors -- was built in what had been a family-owned orchard. When Hara closed in August 2016, the economic hit to the Dayton area was estimated to be \$36 million a year.

HAMVENTION FORUM VIDEOS NOW SEARCHABLE ON YOUTUBE - Videos of some Hamvention 2018 forums are available in the YouTube Dayton Hamvention 2018 videos playlist. Among those available are the [TAPR Forum](#), the [SDR Forum](#) and the [HamSCI Forum](#). — Thanks to George Byrkit, K9TRV

THANKS FOR READING!

THE RCA ARC MONTHLY NEWSLETTER IS COMPILED AND EDITED BY JIM RINEHART, K9RU AND JIM KEETH, AF9A. ALL MATERIAL CONTAINED HEREIN IS OBTAINED FROM THE SOURCES CREDITED AND EDITED FOR THIS NEWSLETTER. EMAIL TO <mailto:WebMaster@w9rca.org>. Check our web site at <http://www.w9rca.org/>
